PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing (*day/month/year*)	15 JUN 2005
Applicant's or agent's file reference 15838-345PCT	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date (*day/month/year*)	Priority date (*day/month/year*)
PCT/US04/41434	08 December 2004 (08.12.2004)	08 December 2003 (08.12.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): A61F 13/15; B32B 27/12, 31/12, 31/16 and US Cl.: 156/244.11, 244.14, 244.18, 244.21, 253, 285; 604/381-382,358,442/394

Applicant

TREDEGAR FILM PRODUCTS CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I — Basis of the opinion
- ☐ Box No. II — Priority
- ☐ Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV — Lack of unity of invention
- ☒ Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI — Certain documents cited
- ☐ Box No. VII — Certain defects in the international application
- ☐ Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US
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Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material

      ☐ a sequence listing

      ☐ table(s) related to the sequence listing

   b. format of material

      ☐ in written format

      ☐ in computer readable form

   c. time of filing/furnishing

      ☐ contained in international application as filed.

      ☐ filed together with the international application in computer readable form.

      ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has:
   - ☒ paid additional fees
   - ☐ paid additional fees under protest
   - ☐ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
   - ☐ complied with
   - ☒ not complied with for the following reasons:

   See the lack of unity section of the International Search Report(Form PCT/ISA/210)

4. Consequently, this opinion has been established in respect of the following parts of the international application:
   - ☒ all parts.
   - ☐ the parts relating to claims Nos. _____

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Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 11, 20, 28-29, 31, and 37-40	YES
	Claims 1-10,12-19,21-27,30, and 32-36	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-40	NO
Industrial applicability (IA)	Claims 1-40	YES
	Claims NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

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Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:

1. Claims 1-10, 12-19, 21-26, 30, and 32-36 lack novelty under PCT Article 33(2) as being clearly anticipated by Wallstrom (US 5,935,682). See the abstract, column 1 lines 13-24; column 3 line 27 to col. 4 line 14; figures 1-2.
Note: it is acknowledge that through-holes are not formed in a second layer of a facing sheet of an absorbent article taught by Wallstrom. However, claim 10 is taken to be anticipated by Wallstrom, because this claim only requires forming apertures to a second layer. This limitation reads on depressions or cavities (22), which are formed on a second layer (14). Note further that, the recited activating step in claims 2, 12, 26 are taken to read on a process illustrated in figures 5-6, where a 1st/2nd laminated composite is subjected to a cutting operating using a pair of rollers comprising a milling roller with cutting edges and a pattern roll with projections.

2. Claims 10-20 and 33 lack an inventive step under PCT Article 33(3) as being obvious over Wallstrom (US 5,935,682) in view of Thomas (US 6,242,074).
Note: independent claims 10 and 33 along with their respective dependent claims are taken to be anticipated by Wallstrom in numbered paragraph 1. This alternative opinion is made in the event that, the limitation "apertures" defines over the depressions or cavities on a second layer of an absorbent article of Wallstrom.
With respect to claims 10, 12-20 and 33, it would have been obvious in the art to form apertures to a second layer of a facing sheet taught by Wallstrom, because Thomas teaches forming apertures to a second layer of a 3-D fiber/film laminated facing sheet in order to increase "fluid acquisition and dryness, ..." (col. 1 lines 11-25; col. 2 lines 13-44; figures 4A-4B).
With respect to claim 11, see column 5 line 61 to column 6 line 43; figure 7 of the Thomas patent.
With respect to claim 20, see figure 1 and column 6 lines 34-43 of the Thomas patent.

3. Claims 27 and 32 lack novelty under PCT Article 33(2) as being anticipated by Thomas (US 6,242,074).
Thomas teaches introducing a molten thermoplastic film (12) onto a perforated vacuum forming drum, providing a non-woven web (10) to the film, applying 1st suction to the film/web laminate on the forming drum to form apertures to the film, applying a localized 2nd suction to the film/web laminate to remove excess fibers in the film/web laminate. Although not expressly disclosed, a 2nd suction operation must necessarily create localized disturbances to a 1st/2nd laminated composite. In view that, the 2nd suction operation create localized disturbances and remove excess fibers in the laminated composite, the film on the laminate composite must to a certain degree be exposed through the nonwoven portions.
Note: this claim does not require positively performing the vacuum exerting step and the activation step separately. Alternatively, as illustrated in figures 4A and 7, as the 1st/2nd laminated composite is subjected to localized suctions, this suction operation creates localized disturbances thereby exposing lower portion of "side walls" of the film in the laminated composite.

4. Claims 27 and 32 lack an inventive step under PCT Article 33(3) as being obvious over Pelkie (US 5,733,628) in view of Curro et al (US 5,658,639).
Thomas teaches introducing a molten thermoplastic film (12) onto a perforated vacuum forming drum, providing a non-woven web (10) to the film, and applying 1st suction to the film/web laminate on the forming drum to form apertures to the film (figures 1-2).
Thomas does not teach subjecting a laminate to an activation process to create localized disturbances in the nonwoven portion of the

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

composite such that the film is exposed through the nonwoven portions. However, it would have been obvious in the art to incrementally stretch (i.e. activate) a film/web laminate of Thomas thereby creating a plurality of apertures to at least a web layer of the laminate, because Curro et al teaches forming a topsheet of an absorbent article by not only creating surface energy gradient to a web layer, but also incrementally stretching the web layer (abstract; col. 2 line 46 to col. 3 line 39; col. 15 line 40 to col. 17 line 45; figures 1 and 10). It directly follows that, a modified process of Pelkie must naturally create localize disturbances as the composite is incrementally stretched such that "the film is exposed through the nonwoven portions".

5. Claim 28 lacks an inventive step under PCT Article 33(3) as being obvious over Thomas (US 6,242,074) in view of Igaue et al (US 5,522,811).
The discussion of the Thomas patent in numbered paragraph 3 is incorporated herein. Thomas does not appear to teach introducing molten fibers to a film layer. However, such would have been obvious in the art, because it is well known in the absorbent topsheet making art to deposit melt-blown fibers directly onto a vacuum forming drum as exemplified in the teachings of Igaue et al (abstract; figure 3). The incentive for one in the art to apply molten fibers to a film layer in a process taught by Thomas would have simply been to obtain the self-evident advantage of enhancing the bonding between the film and fiber layer.

6. Claim 28 lacks an inventive step under PCT Article 33(3) as being obvious over Pelkie (US 5,733,628) in view of Curro et al (US 5,658,639) and Igaue et al (US 5,522,811).
The discussion of the Pelkie and Curro patents in numbered paragraph 4 is incorporated herein. Pelkie does not appear to teach introducing molten fibers to a film layer. However, such would have been obvious in the art, because it is well known in the absorbent topsheet making art to deposit melt-blown fibers directly onto a vacuum forming drum as exemplified in the teachings of Igaue et al (abstract; figure 3). The incentive for one in the art to apply molten fibers to a film layer in a process taught by Thomas would have simply been to obtain the self-evident advantage of enhancing the bonding between the film and fiber layer.

7. Claim 29 lacks an inventive step under PCT Article 33(3) as being obvious over the references set forth in numbered paragraph 5 or 6 as applied in claim 28 and further in view of Wallstrom (US 5,935,682).
It would have been obvious in the art to use a hydrophillic thermoplastic film and a hydrophobic facing nonwoven web in forming an absorbent topsheet, because Wallstrom teaches forming a topsheet comprising a facing hydrophobic nonwoven web and a hydrophilic thermoplastic film to reduce potential for rewet and enhance fluid acquisition (abstract; col. 3 line 27 to col. 4 line 25).

8. Claim 31 lacks an inventive step under PCT Article 33(3) as being obvious over Barge et al (US 5,989,688) in view of Wallstrom (US 5,935,682) and Curro et al (US 5,658,639).
Barge et al teaches an absorbent laminated composite, the laminated composite is useful as a topsheet or an acquisition/distribution layer (abstract; col. 1 lines 9-28; col. 2 line 44 to col. 6 line 67). Barge does not teach creating surface energy gradient between the layers by using a facing web which has lower surface energy than a lower web layer. However such would have been obvious in the art, because: a) Wallstrom teaches forming a top sheet laminated composite comprising a hydrophobic web layer and a hydrophilic web layer to reduce rewet potential; and, b) Curro et al teaches forming a fibrous web having a surface energy gradient to reduce rewet potential , the fibrous web is useful as a topsheet or an acquisition layer of an absorbent article (abstract; col. 4 line 33 to col. 8 line 53; col. 11 line 7 to col. 12 line 52; col. 22 line 6 to col. 23 line 34; figures 1-3).

9. Claim 37-40 lacks an inventive step under PCT Article 33(3) as being obvious over the references set forth in numbered paragraph 1 as applied in claim 1.
It is conventional in the art to provide a topsheet to absorbent articles recited in these claims. It would have been obvious in the art to use the top sheet suggested by Wallstrom in order to reduce the potential of rewet and drive the fluid into an absorbent core.